

ABSTRACT

This invention is a method and system to control engine shutdown in a hybrid electric vehicle (HEV). The invention allows for reduced tailpipe emissions during the many engine shutdowns and subsequent restarts during the course of an HEV drive cycle and reduced evaporative emissions during an HEV "soak" (inactive) period. The engine shutdown routine can ramp off fuel injectors, control engine torque (via electronic throttle control), control engine speed, stop spark delivery by disabling the ignition system, stop purge vapor flow by closing a vapor management valve (VMV), stop exhaust gas recirculation (EGR) flow by closing an EGR valve, and flush the intake manifold of residual fuel (vapor and puddles) into the combustion chamber to be combusted. The resulting exhaust gas byproducts are then converted in the catalytic converter.